

JAR-856-2387
8 April 1968
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To: Bruce B.
cc: Joe R., Bob B.

Subject: Report on Visit [] 28 March 1968 - DC-TM-1504

Personnel present: []

Upon arrival [] a review of the new flotation garments and the automatic actuator was made.

The main question that arose was why the garments were designed with the inflator on the subject's left side of the mounting stem. I explained that due to lack of space on some of the smaller PPAs the inflator could not be mounted to the right of the stem without a conflict with the helmet holddown strap. Mechanically the automatic inflator will work equally well mounted on either side.

Dan and Bob explained that it was not possible to have the inflator interface correctly with the stem mounted on the left side.

I found that the spacers supplied with the automatic inflators were too short and not the ones that Dan and I had agreed on some time ago. Dan had a longer spacer with him that he recently made up and this was tried. The inflator mounted to the garment satisfactorily using this spacer. However, I pointed out to Dan that it was long enough to partially block the two gas holes in the inflator stem and recommended that they be shortened 1/32".

The screw nut supplied with the spacers had a shoulder under the head that interfered with the tightening and sealing requirements. I recommended that this shoulder be removed. Dan Z. had the machine shop alter both the spacers and the nuts and they worked to everyone's satisfaction.

The first automatic inflator that was tried would not pierce the CO₂ bottle. The second inflator would only partially puncture the bottle which created a slow inflation of the garment. At this point it was decided to check all of the automatic inflators on hand.

The actuating force of the standard manual inflator is limited to 22 pounds maximum. Of the automatic units inspected the force went from a range of 32 pounds to a point where it failed to operate.

On installing the CO₂ bottles some of them bound up in the threads of the inflators. Upon inspection it was found that the threads of the valves were dirty, not deburred and some apparently not anodized.

Approximately one and a half (1-1/2) years ago Dan Z., Bob B. and I visited a Mr. [] and discussed this valve.

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One of the requirements stated was to move the CO₂ bottle binder screw from the face of the valve to the edge. This was not done on the valves tested and the screw was inaccessible when the unit was mounted to the garment. I asked Dan to have the screw hole relocated on three of the valves which he did at

STAT

Of all the valves on hand, approximately twelve (12), only one (1) was acceptable. Dan was returning the remainder to the manufacturer for rework.

The reliability of the automatic feature was questionable because of two instances in which unexplainable and inadvertent firing of the squibs occurred. The first instance the valve was still in the plastic shipping envelope when it fired. The second instance occurred when the valve fired as it lay untouched on a table. Dan Z. is checking this out with the manufacturer.

I suggested that the tolerances be tightened up on the piercing pin as there seemed to be a difference in length and taper. The Jay-El valves use the same kind of a neoprene gasket to seal with the CO₂ bottle as has been used with the standard inflator. I talked to Dan Z. about our current effort to eliminate the neoprene gasket and replace it with an "O" ring seal and provide a metal-to-metal valve-to-bottle contact on the standard inflator.

In using the gasket to seal, the distance between the bottle and the piercing pin will vary due to thickness tolerances and durometer change of the gaskets. The piercing pin being tapered and having a set travel distance in the valve will puncture the CO₂ bottle with a small or large hole depending on the location of the bottle and will affect the inflation time of the garment.

It is my opinion that an intensive reliability exercise should be performed on these valves especially due to the inadvertent firing of two units.

It was determined that nothing was wrong with the flotation garments themselves. The oral inflation hose was relocated to the right side to be identical with the -5 -4 PPA which was used as the prototype configuration and was tested and accepted in this configuration. The hose on the -5 -4 was placed on the right side on request of -5 to remove it from the vicinity of the chest strap buckle.



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Garment Reinforcements

12 April 67

GN-1-15

REFERENCE: PICTURE

Pilots Protective Assembly

MODEL TO: GN-S901E/F/G/H
and GN-S970

Flotation Garment

GN-ACS-1617, GN-ACS-422,
GN-ACS-2184

See attached list

To provide reinforcement of the flotation garment to guard against fabric wear from the inflator valve and from the suit controller.

WHEN TO BE DONE

XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

WITH NEXT MAINTENANCE ACTION
XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXX

MANHOURS TO COMPLETE

OPERATIONS	FIELD 1 hr.	DEPOT	FACTORY	TOTAL 1 hr.
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KIT DESCRIPTION

Kit No. GN-K1009

- Kit consists of:

1. Wear Protector, Flotation Actuator - GN-11634P01 - 1 each
2. Wear Protector, Controller Opening - GN-11633P01 - 1 each

Note: All kits are sized according to subject number. (See attached list)

DESCRIPTION OF CHANGE

Install reinforcements on flotation garments in accordance with Installation Procedure, GN-EJP-2604.

KIT AVAILABILITY DATE April 1967

DISPOSITION OF REPLACED PARTS

None

DISPOSITION OF SPARES

None

WEIGHT AND BALANCE CHANGE

Negligible

SPECIAL TOOLS REQUIRED

None

REASON FOR ISSUE

APPROVAL SIGNATURE

APPROVED BY

DATE

SERIAL NOS.

Approved For Release 2003/03/10 : CIA-RDP75B00285R000300160021-9

13 April 1967

Kit, Reinforcements, Flotation Garments - Kit # GN-K1009

All kits must be installed in accordance with the following list:

<u>SUBJECT NO.</u>	<u>PILOTS PROTECTIVE ASSEMBLY</u>
5-5	GN-S970
5-6	GN-S970
12	GN-S901G
13	GN-S901F
13-2	GN-S970
14	GN-S970
17	GN-S970
18	GN-S970
19	GN-S901H
20	GN-S901H
1045	GN-S901E
1045-3	GN-S970
1045-4	GN-S970
1046	GN-S901E
1046-3	GN-S970
1050-2	GN-S901E
1050-3	GN-S970
1050-4	GN-S970
1051	GN-S901E
1051-2	GN-S901E
1051-3	GN-S970
1052-3	GN-S970
1052-4	GN-S970
1054-3	GN-S970
1054-4	GN-S970

Procedure for Installation
of
Flotation Garment Reinforcements
to
Flotation Garment Assemblies

GN-ACS-1617	GN-S-S970
GN-ACS-422	GN-S-901-E and G, F
GN-ACS-2184	GN-S-901 H

Kit, Reinforcements, Flotation Garments

K1009

Introduction

These procedural instructions are used with Kit, Reinforcements, Flotation Garments, GN-K1009 to cover the installation of:

1. Wear Protector, Flotation Actuator
2. Wear Protector, Controller Opening

to

Flotation Garment Assemblies

GN-ACS-1617
GN-ACS-422
GN-ACS-2184

GN-S970
GN-S-901 E/G/F
GN-S-901 H

Kit Inventory

1. Wear Protector, Flotation Actuator 1 each
GN-11634P01
2. Wear Protector, Controller Opening 1 each
GN-11633P01

IMPORTANT

When ordering kits, specify suit size or subject number.

1.0 Parts and Material List

1.1 Parts

1.1.1	Hand Roller	GN-P-1619
1.1.2	Wrench 9/16" Open End	GN-P-3851
1.1.3	Marking Pencil (Blue)	GN-P-5873
1.1.4	Emery Cloth (120 grit)	GN-P-1617
1.1.5	Cloth - Cheesecloth	GN-P-1618
1.1.6	Powder, Talcum	GN-P-293
1.1.7	Toluol	GN-P-254

1.2 Material

1.2.1	Neoprene N-136B	GN-P-768
1.2.2	Accelerator N-136A	GN-P-747
1.2.3	Nylo Tarp	GN-PA3413
1.2.3.1	Wear Protector, Flotation Actuator	GN-11634G01
1.2.3.2	Wear Protector, Controller Opening	GN-11633P01

1.3 Preparation and Installation of the Flotation Actuator Wear Protector GN-11634G01.

- 1.3.1 Using a small piece of fine emery cloth GN-P-1617, lightly roughen the neoprene coated side of the Flotation Actuator Wear Protector Patch.
- 1.3.2 Place the wear protector patch buffed surface down, over the inflator stem (assuring proper placement of opening around the stem) and align the patch so that it is positioned perpendicular with the bottom edge of the assembly. Hold in position.

- 1.3.3 Using a marking pencil (Blue) GN-P-5873, outline the perimeter of the lower protector patch on the flotation garment assembly.
 - 1.3.4 Remove the wear protector patch from the assembly.
 - 1.3.5 Soak a pad of cheesecloth GN-P-1618, with toluol GN-P-254 and wipe the dust particles from the coated surface of the wear protector patch and from the outlined area (Reference: Step 1.3.3 above) on the flotation garment assembly.
 - 1.3.6 Apply four (4) coats of neoprene cement GN-P-768 to the outlined area on the assembly and three coats to the nylo tarp buffed surface of the Wear protector patch allowing each application to dry to tackiness between coats.
 - 1.3.7 Using toluol, activate the cemented areas on the wear protector patch and the flotation garment assembly.
 - 1.3.8 Join the wear protector patch to the assembly, assuring proper alignment of the patch with the marks on the flotation garment assembly.
 - 1.3.9 Roll with a hand roller, GN-P-1619, to insure a secure bond and eliminate wrinkles, pleats, and bubbles.
 - 1.3.10 Dust all areas of excessive cement with talcum powder GN-P-298 or equal to prevent undesired adhesion.
 - 1.4 Preparation and Installation of Stiffener, Control Opening, GN-11633P01.
 - 1.4.1 Using a fine piece of emery cloth, lightly roughen one side of the stiffener patch.
 - 1.4.2 Position the stiffener patch at the bottom half of the controller opening by aligning the concave radius of the controller opening approximately 3/8" away from the concave radius of the patch. Hold in position.
 - 1.4.3 Using a marking pencil, outline the perimeter of the stiffener patch on the flotation garment assembly.

Procedure No. - GN-EJP-2604

Date: 3 March 1967
Revised:

- 1.4.4 Remove the stiffener patch from the assembly.
- 1.4.5 Soak a pad of cheesecloth in toluol and wipe the dust particles from the coated surface of the stiffener patch and from the outlined area (Reference: Step 1.4.3 above) on the flotation garment assembly.
- 1.4.6 Apply four coats of neoprene cement to the outlined area of the assembly and three coats to the nylon tarp buffed surface of the stiffener patch, allowing each application to dry to tackiness between coats.
- 1.4.7 Using toluol, activate the cemented areas on the stiffener patch and the flotation garment assembly.
- 1.4.8 Join the stiffener protector patch to the assembly assuring proper alignment of the patch with the marks on the flotation garment assembly.
- 1.4.9 Roll with a hand roller to insure a secure bond and eliminate all wrinkles, pleats, and bubbles.
- 1.4.10 Dust all areas of excessive cement with talcum powder to prevent undesired adhesion.

NOTE

Permit the flotation garment assembly to air cure for a minimum of twelve (12) hours prior to inflation.

2.0 Flotation Garment Removal from Exterior Cover Assembly

- 2.1 Remove the exterior cover from the assembly.
- 2.2 Remove the flotation garment from the exterior cover.

3.0 Inflator Valve Assembly Removal

(Reference Figure 1)

- 3.1 Using an open end wrench GN-P-3851, loosen and remove Inflator Cap GN-P-2094 (Reference 1) from the Assembly.
- 3.2 Remove black gasket GN-P-2091 (Reference 2) from the inflator stem.

- 3.3 Remove the Inflator Valve Assembly (Reference 3) from the Inflator Stem.

CAUTION

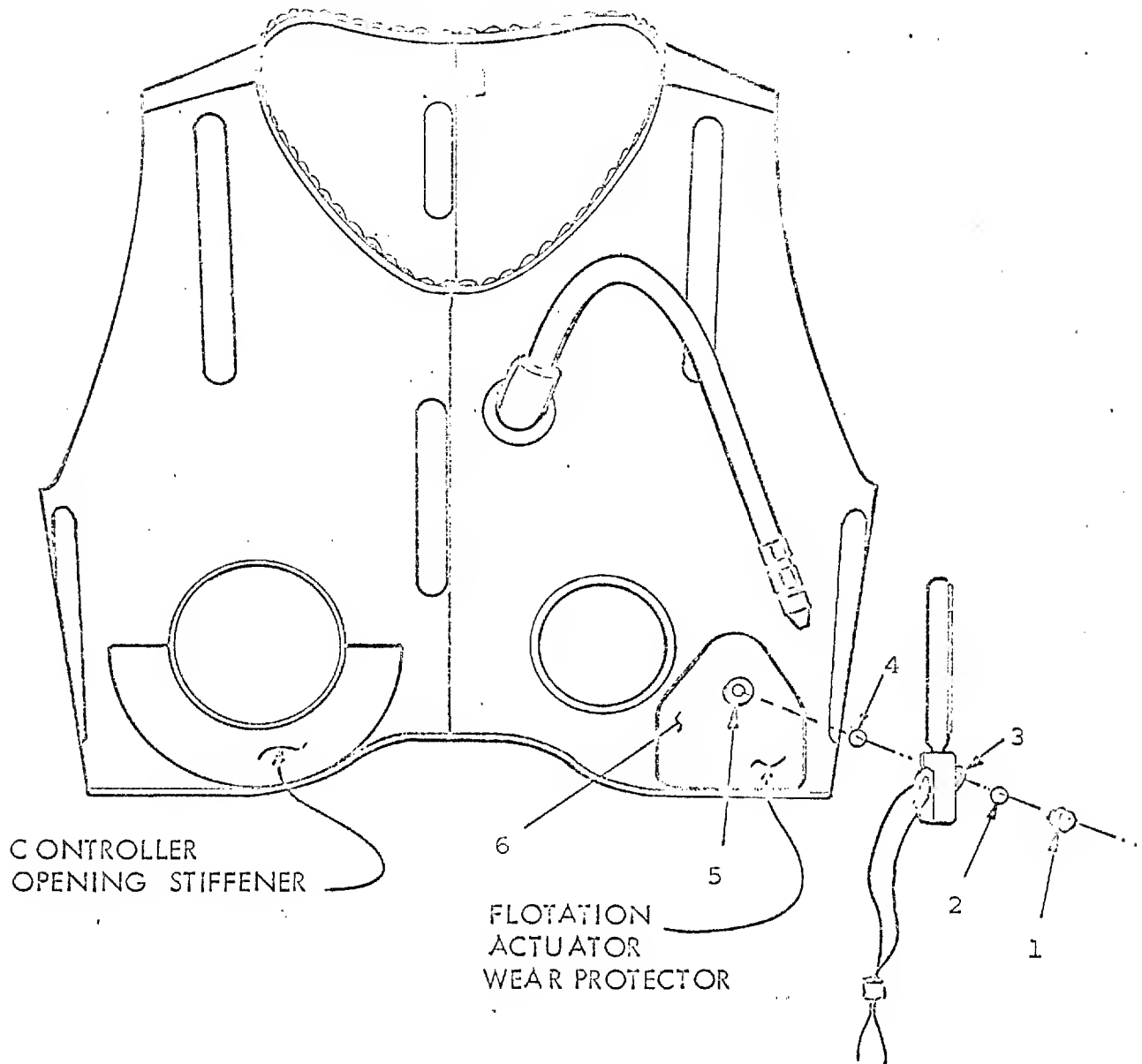
During the removal and replacement of the Inflator Valve Assembly, care must be exercised to avoid discharging the CO² cylinder.

- 3.4 Remove white gasket GN-P-2092 (Reference 4) from the Inflator Stem.

4.0 Inflator Valve Assembly Replacement

(Reference Figure 1)

- 4.1 Place the (white) gasket (Reference 4) over the Inflator Stem (Reference 5).
- 4.2 Place the Inflator Valve Assembly (Reference 5) over the Inflator Stem.
- 4.3 Place the (black) gasket (Reference 2) over the Inflator stem, insuring proper seating of the gasket on the Inflator Valve.
- 4.4 Screw the Inflator Cap onto the Inflator Stem and tighten securely, using an open end wrench.
- 4.5 Perform periodic inspection and test (according to GN-HM-370) before returning the flotation garment to operational status.



FLOTATION GARMENT ASSEMBLY
FIGURE 1